

27105-66

ACC NR: AP6017406

SOURCE CODE: UR/0122/65/000/008/0040/0041

AUTHOR: Borisoglebskiy, A. I. (Engineer); Kuz'min, R. V. (Engineer); Vasil'yev, Yu. V. (Engineer)

ORG: none

TITLE: Stand for determining the frequency of the normal mode of a gas column in interstage compressor lines

SOURCE: Vestnik mashinostroyeniya, no. 8, 1965, 40-41

TOPIC TAGS: white noise, noise generator, noise analyzer, tape recorder, electronic amplifier/ZG-10 noise generator, MAG-8 tape recorder, UNCh 50W electronic amplifier, MTU electronic amplifier

ABSTRACT: The frequency of natural oscillations of the gas column in interstage compressor lines is determined chiefly by the geometric characteristics of the lines and the volumes connected by them. Therefore an acoustic method may be used for determining this parameter. This requires excitation of acoustic vibrations by a special radiator placed at the end of one of the lines with receivers at various points on the line where the gas column is in oscillation. The authors describe a stand developed for this purpose.

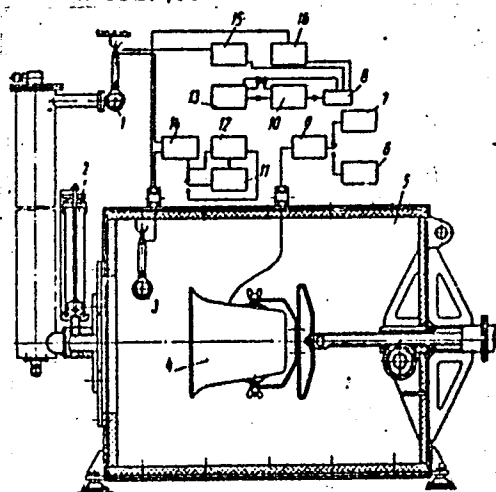
Card 1/2

UDC: 62-119:621.512.001.5

27105-66

ACC NR: AP6017406

2



Stand for acoustic tests of interstage compressor lines in the 40-300 cps frequency range: 1 and 3--MD 36-B microphone; 2--buffer space; 4--dynamic loudspeaker; 5--sonic radiation chamber; 6--ZG-10 sound generator; 7--white noise generator or MAG-8 tape recorder; 8--UNCh 50 W amplifier; 10 and 11--automatic recorder; 12 and 13--analyzer; 14--MIU multichannel measurement amplifier; 15 and 16--phonometers.

Orig. art. has: 1 figure. [JPRS]

SUB CODE: 09 / SUBM DATE: none

Card 2/2 h/

BORISOGLEBSKIY, A.I., inzh.; KUZ'MIN, R.V., inzh.; VASIL'YEV, Yu.V., inzh.

Stand for determining the frequency of natural oscillations
of a gas column in interstage communications of compressors.
Vest.mashinostr. 45 no.8:40-41 Ag '65.

(MIRA 18:12)

VASIL'YEV, Yu.V.

Thermal stability of synthetic fibers. Khim.volok. no.3:41-46
'61. (MIRA 14:6)

1. Moskovskiy tekstil'nyy institut.
(Textile fibers, Synthetic--Thermal properties)

29112

S/020/61/140/005/009/011

B125/B138

9.7/40 (112, 1147)

AUTHORS: Potemkin, V. V., and Vasil'yev, Yu. V.

TITLE: Study of the "memory effect" in ferrites

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 5, 1961. 1091-1095

TEXT: The authors studied this "memory effect" with comparatively high power control signals (10^{-9} - 10^{-5} watts). The effect was distinctly marked and could be measured by the method and apparatus proposed by M. G. Say (Magnetic Amplifiers and Saturable Reactors, 1954). The authors studied a ferrite of the type "оксифер 200" (oksifer 200) at two frequencies $f_1 = 200$ cps and $f_2 = 2000$ cps of the variable magnetic excitation fields. At 200 cps the field strengths were $5H_c, 2H_c, 0.5 H_c$, and at 2000 cps, $5H_c, 2H_c, H_c$, H_c being the coercive force of the ferrite amounting to 0.45 oersteds. The field strength of the controlling constant field lay between 0 and $2H_c$. Figs. 1 and 2 illustrate the most important results of the present paper. The time t , within which a

Card 1/4₂

29112

S/C20/61/140/005/005/011

B125/B138

Study of the "memory" ...

"temporary memory" exists, is plotted on the abscissa. The time τ plotted on the left is the duration of action of the constant magnetic field (signal). The "temporary memory" depends on the duration of action of the constant field, the frequency, and the ratio between field strengths of the constant magnetic field and of the magnetic alternating field. The "memory effect" depends on three principal factors: hysteresis, viscosity phenomena and Foucault currents. If $H \ll H_c$ (H is the field strength of the constant field) and if \tilde{H} (field strength of the magnetic alternating field) is of the order of magnitude of the saturation field, then the individual cycle shifts into the Rayleigh range. After the switch-off of the constant field H , the individual cycle returns to the initial position. There is no "memory" due to the asymmetric form of the loop of the individual cycle since the latter becomes symmetric. The appearance of the even harmonic of induction (here called "memory") after the switch-off of H is a consequence of the nonlinearity of the characteristic of the magnetic material, the asymmetry of the magnetic cycle. With large H , a "memory effect" exists since, in this case, the dynamic hysteresis loops shift into the range

Card 2/4₅

Study of the "memory ...

29113

S/020/61/140/005/009/022

B125/B138

of irreversible processes. With high excitation field strengths \tilde{H} (of the order of magnitude of the saturation field H_s), the "temporary memory" is caused by viscosity. The relaxation time decreases with increasing frequency f of the field \tilde{H} , and, therefore, the rate of diminution of the second harmonic of induction increases. With weak \tilde{H} and increasing frequency, the field of Foucault currents, besides \tilde{H} , affects the "memory effect". There are 2 figures and 3 references: 1 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: F. C. Williams, S. W. Noble, PEE, 27, 445 (1950); M. G. Say, Magnetic Amplifiers and Saturable Reactors, 1954. 41

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: March 19, 1961, by I. K. Kikoin, Academician

SUBMITTED: February 28, 1961

Card 3/4
3

ROGOVINA, A.A.; VASIL'YEV, Yu.V.

Resistance of a cord made of certain kinds of synthetic fibers
to multiple dynamic deformations. Khim.volok no.4:63-68 '62.
(MIRA 15:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo
volokna (for Rogovina). 2. Moskovskiy tekstil'nyy institut (for
Vasil'yev).

(Textile fibers, Synthetic--Testing)

ROGOVINA, A.A., NOVIKOVA, S.A., GIL'MAN, I.S., VASIL'YEV, YU.V.

Some structural changes of polyamide fibers on heating and dynamic fatigue.

Report presented at the 13th Conference on high-molecular Compounds
Moscow, 8-11 Oct 62

ACCESSION NR: AP4036407

8/0030/64/000/004/0154/0158

AUTHOR: Vasil'yev, Yu. V.

TITLE: Study of superconductive alloys and compounds (Session of General and Applied Physics Department)

SOURCE: AN SSSR. Vestnik, no. 4, 1964, 154-158

TOPIC TAGS: superconductor theory, superconductive alloy, superconductive compound, cadmium, zirconium, neutron scattering, cryotron

ABSTRACT: The author of this report, Yu. V. Vasil'yev, was a participant of the scientific session of the General and Applied Physics Department, held on November 13, 1963 at the Institut fizicheskikh problem im. S. I. Vavilov (S. I. Vavilov Institute on Physical Problems). The main topic of this session was the properties of superconductive alloys and compounds. P. L. Kapitsa opened the session by giving a short historical review of the development of ideas concerning the mechanism of electrical conductivity. These ideas culminated in the formulation of the microscopic superconductivity theory. The scientists responsible for this achievement were L. Cooper, J. Bardin, J. Shriver (USA) and N. N. Bogolyubov

Card 1/2

ACCESSION NR: AP4036407

(SSSR). The author mentions V. L. Ginzburg and L. D. Landau, who formulated a theory explaining the relations among the known superconductor parameters (before the origin of the microscopic theory). The results of their work are still very important, as the theory was sustained and developed further by A. A. Abrikosov and L. P. Gor'kov. N. Ye. Alekseyevskiy reported on the present state of the superconductor problems and A. A. Abrikosov spoke on the general theory of superconductive alloys. After these speeches several short reports were read by N. B. Brandt and N. I. Ginzburg (Variation of Critical Temperature of Cadmium and Zirconium under Pressure), V. V. Shmidt (Properties of Strongly Deformed Superconductive Alloys), F. L. Shapiro (Neutron Scattering in Superconductors), and R. A. Chentsova (On Cryotrons).

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 20May64

ENCL: 00

SUB CODE: GP,88

NO REF SOV: 000

OTHER: 000

Cord 2/2

VASIL'YEV, Yu.V.; ROGOVINA, A.A.

Studying the development of cracks in polyamide yarn under dynamic fatigue conditions. Khim.volok.no.5:59-62 '64. (NIIA 17:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut steklyannogo volokna (for Vasil'yev). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (for Rogovina).

VASIL'YEV, Yu.V.

Identification of textile fibers. Izv.vys.ucheb.zav.; tekhn.
tekst.prom. no.2:9-18 '59. (MIRA 12:6)

1. Moskovskiy tekstil'nyy institut.
(Textile fibers--Testing)

21743

S/183/61/000/003/002/002
B101/B208

15.5500

AUTHOR: Vasil'yev, Yu. V.

TITLE: Study of the heat resistance of synthetic fibers

PERIODICAL: Khimicheskiye volokna, no. 3, 1961, 41 - 46

TEXT: The purpose of the present study was to obtain systematic data on tensile strength and elongation of chemical fibers at elevated temperatures. The following fibers were studied: "Khlirin" (fibers from additionally chlorinated polyvinyl chloride); "Saniv" (copolymer from 40 % acrylonitrile and 60 % vinylidene chloride), caprone, "Nitron", viscose rayon, celhildse diacetate rayon, A20-Ca (A20-Ca) fiber (80 mole% acrylonitrile, 20% acrylic acid, with calcium cross links), M20-Ca (M20-Ca) fiber (80% acrylonitrile and 20% methacrylic acid, with calcium cross links). The preparation of A20-Ca and M20-Ca will be described in a separate publication. Data on teflon (Ref. 11, see below) and darlan (Ref. 12, see below) are given for comparison. Tensile strength and elongation were measured at 20 - 220°C on a dynamometer in a thermostat under a 3 or 10 min action of temperature. Furthermore, non-clamped

Card 1/4

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B101/B208

Study of the heat resistance of...

fibers were heated for 10 min or 1 hr, and then their tensile strength and elongation determined. The following results were obtained: (1) Teflon is most stable, and has still 10% of the initial tensile strength at 240 - 250°C. Its disadvantage is that it loses 50% of its initial tensile strength already at 60°C. (2) From among the other types of chemical fibers, viscose rayon exhibited the best properties, in particular an increase in tensile strength at 120 - 130°C owing to the formation of new H-bonds. Irreversible change of tensile strength occurs only above 180°C, change of the elongation at rupture above 150°C. These changes also depend on the time of heating: 10 min at 200°C are ineffective, 1 hr at this temperature reduces the breaking length from 14.7 to 11 km. Also cellulose-diacetate fiber showed an increase in tensile strength at 40 - 50°C by 30 - 35%, but this fiber is thermoplastic and loses its tensile strength completely at 150°C. (3) Synthetic carbon chain fibers have a comparatively low heat resistance. The tensile strength of polyacrylonitrile fibers becomes zero at 170 - 175°C. (4) Copolymers of acrylonitrile have an irregular structure which reduces the heat resistance. The tensile strength of Khlorin is zero at 90°C. The critical temperature

Card 2/4

Study of the heat resistance of...

24743
S/183/61/000/003/002/002
B101/B208

of Saniv is 50°C lower than that of the pure polyacrylonitrile fiber "Nitron". When heated to 140 or 160°C for 1 hr, "Saniv" has still a breaking length of 7, 6 and 5 km, respectively. Its tensile strength depends on the kind of drawing. On hot drawing the breaking length increases from 17.2 to 26.3 km, and the tensile strength vanishes only at 140°C. 115 - 120°C was found to be the optimum for the thermal relaxation of Saniv. The breaking elongation there increases from 7.6 to 20.3%, the breaking length from 26.3 to 28.4 km. These data permit an industrial utilization of this fiber. Mention is made of the fact that the thermal stability of darlan (50:50 vinylidene cyanide and vinyl acetate) is not inferior to that of the polyacrylonitrile fiber, which is explained by its regular structure. (5) Caprone has a lower heat resistance than viscose rayon. But a maximum tensile strength was observed near the vitrification temperature (36°C). At higher temperatures tensile strength and breaking elongation of caprone are completely reversible. Below 140°C, the tensile strength even increases by 4 - 5% and the breaking elongation by 10 - 15% as a result of relaxation. (6) The copolymers from acrylonitrile and acrylic or methacrylic acid with calcium cross links even disclosed better heat resistance than teflon. At 200 - 220°C they still

Card 3/ 4

24743

S/183/61/000/003/002/002
B101/B208

Study of the heat resistance of...

had 40% of the initial tensile strength. The breaking elongation increased from 22 - 25% to 25 - 30%. The tensile strength vanishes only at 300 - 305°C. The increased thermal vibration of the macromolecules is considered to be the main cause of the reduction of tensile strength at a temperature rise. If the weaker forces of the intermolecular interaction are replaced by the stronger valence forces and the formation of cross links, the heat resistance increases considerably. Mention is made of T. Finkel'shteyn, V. Kargin, Z. Rogovin, A. A. Konkin, G. I. Kudryavtsev, A. V. Motorina, V. Smirnov, V. V. Linde, A. A. Rogovina, S. A. Nechayeva. There are 8 figures, 1 table, and 14 references: 9 Soviet-bloc and 5 non-Soviet-bloc. The four most important references to English-language publications read as follows: Ref. 2: S. P. Gundavda. Brit. Rayon a. Silk J., 31, 363 (1954); Ref. 10: G. M. Brayant, A. T. Walter, Text. Res. J., 29, no. 3, 211 (1959); Ref. 11: J. T. Rives, R. L. Franklin, Text. Res. J., 26, 805 (1956); Ref. 12: R. D. Smith, Text. Res. J., 27, no. 9, 701 (1957)

ASSOCIATION: Moskovskiy tekstil'nyy institut (Moscow Textile Institute)

Card 4/4

VASIL'YEV, Yu.V.; MAKHOV, V.G.; POGOSOV, I. L.

Methods of manufacturing laboratory apparatus and equipment
of polyethylene. Zav. lab. 38 no.4:507-508 '62. (MIRA 15:5)

1. Moskovskiy tekstil'nyy institut i Institut khimii polimerov
AN USSR.

(Laboratories. Equipment and supplies)
(Polyethylene)

POTEMKIN, V.V.; VASIL'YEV, Yu.V.

Memory effect on ferrates. Dokl. AN SSSR 140 no.4:1051-
1053 0 '61. (MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
Predstavleno akademikom I.K.Kikoinym.
(Magnetic induction)
(Ferrates)

S/183/61/000/004/002/002
B101/B206

AUTHORS: Vasil'yev, Yu. V., Rogovin, Z. A.

TITLE: Elaboration of a method for evaluating thermomechanical properties of fibers

PERIODICAL: Khimicheskiye volokna, no. 4, 1961, 42 - 46

TEXT: The authors start from a study by V. A. Kargin (Ref. 1: DAN, 62, 239 (1948); ZhFKh, 23, 563 (1949)) describing the determination of the deformation of polymers under constant load and at increasing temperature. In the present study, they describe a device where this method is applied to finished fibers which differ from initial polymers owing to orientation of their macromolecules. Fig. 1 shows the device schematically. The thread (1) to be tested is clamped. Clamp (2) is suspended from the cross beam (10), the lower clamp (4) is loaded with the weight (5). The thermostat is heated by the heater (3) (1 kw, 220 v). The rate of heating is controlled by rheostat (6) and scale (12) (or by autotransformer). The inspection glasses (7) and (8) provided with a scale permit measurement of the changes in length of fibers at increasing temperature. The other

Card 1/4

1

Elaboration of a method...

S/183/61/000/004/002/002
B101/B206

parts of the device are: (9) thermometer; (11) inclined face for catching the torn-off weight (5); (13) door of thermostat; (14) opening for the torn-off weight; (15) heat insulation layer; (16) core of thermostat. When loading the fiber with weights equaling at least 10% of the tensile strength, the length of the fiber was 100 mm. When using smaller loads or studying the shrinkage, the length was 200 mm. The thread deformation is retarded owing to relaxation. Tests were made to study this effect. It was found that at a maximum rate of heating of 3 - 4°C per min, retardation becomes negligible. With this device the thermomechanical properties were investigated for: (1) nitron fiber; (2) fiber from A-20 (A-20) copolymer of acrylonitrile and acrylic acid; (3) fiber from modified A-20Ca (A-20Ca) copolymer in which cross links from Ca were formed between the carboxylic groups of acrylic acid by means of $\text{Ca}(\text{OH})_2$. The following thermomechanical data necessary for the evaluation of fibers are proposed: (a) temperature of the beginning of shrinkage; (b) temperature at which shrinkage reaches a certain degree (10 or 20%); (c) temperature at which the fiber has a certain residual value of tensile strength (10 or 30%). It is stated that the tensile strength values obtained by this device are slightly higher than those obtained by dynamometer, since the constant load leads to a

Card 2/4

Elaboration of a method...

S/183/61/000/004/002/002
B101/B206

reinforcement of the fiber. Tests of various fibers showed: (1) Viscose rayon has greater thermostability (30% residual tensile strength at 240°C) than polyester fiber (30% at 206°C); (2) cross linking by means of Ca increased the 30% residual strength of A-20 fiber from 134°C to 266°C, that is, above the value for viscose rayon. There are 3 figures, 4 tables, and 5 Soviet-bloc references.

ASSOCIATION: Moskovskiy tekstil'nyy institut (Moscow Textile Institute)

Card 3/4

VASIL'YEV, Yu.V.: ROGOVIN, Z.A.

Synthesis of copolymers of acrylonitrile with acrylic and methacrylic acids and formation of fibers based on them. Khim.volok. no.6:13-19 '61. (MIRA 14:12)

1. Moskovskiy tekstil'nyy institut.
(Textile fibers, Synthetic) (Acrylonitrile)

ANUFRIYEV, Aleksandr Fedorovich; SUPRYAGA, Yakov Andreyevich;
BRATSEV, L.A., otv. red.; VASIL'YEV, Yu.V., red.; VOLKOVA,
V.V., tekhn. red.

[Power resources of the Komi A.S.S.R.] Energeticheskie re-
sursy Komi ASSR. Moskva, Izd-vo AN SSSR, 1963. 64 p.
(MIRA 16:12)

(Komi A.S.S.R.--Power resources)

1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
PROCESSES AND PROPERTIES INDEX																																																			
<div style="display: flex; justify-content: space-between;"> m 7 </div> <p>*A Large-Scale Laboratory Experiment for Obtaining Metallic Calcium. Z. V. Vasiliev, V. P. Maslovets, B. V. Popov, and A. J. Tayts (<i>Legkie Metally</i> (<i>Light Metals</i>), 1964, (10), 28-34).—[In Russian.] Electrolysis of molten calcium chloride at 820°-850° C. in an externally heated cell, with a submerged cathode using current at 12 v., affords metallic calcium with a current efficiency of about 50% and an energy consumption of 20-30 kw.-hr. per kg.—D. N. S.</p> <p>ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			
1ST AND 2ND ORDERS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26																										3RD AND 4TH ORDERS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26																									

CA

4

The effect of barium chloride, calcium chloride and calcium fluoride on the electrolysis of magnesium. V. V. Gue'kov and Z. V. Vasil'ev. *Metallurg* 11, No. 5, 48 (1930).—Addn. of BaCl₂, CaCl₂ and CaF₂ to KCl-MgCl₂ electrolyte increases the current efficiency. H. W. R.

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

120780

Prevention of aluminum carbide formation during the electrolytic production of aluminum. Z. Vasil'ev. *Nyevna Tekhnika* 1937, No. 23, 3. The formation of Al_4C_3 is prevented by the regulation of the composition of electrolyte. An excess of AlF_3 is essential. If this does not destroy any Al_4C_3 formed, then it should be oxidized by passing O through the molten bath. A. A. Podgorny.

ASAC-SEA METALLURGICAL LITERATURE CLASSIFICATION

4

C.A

Multiple cathode electrolytic apparatus, especially for the preparation of calcium. V. P. Mashovets, Z. Y. Vasil'ev and S. A. Semenovskii. Russ. 52,530, April 30, 1939. Constructional details.

ASH 55 A METALLURGICAL LITERATURE CLASSIFICATION

VASIL'YEV, Z. V.

137-58-5-9223

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 66 (USSR)

AUTHORS: Baymakov, Yu. V., Vasil'yev, Z. V., Khodyko, A. D.

TITLE: The Role of Leningrad in the Creation and Development of the Light-metals Industry (Rol' Leningrada v sozdanii i razvitii promyshlennosti legkikh metallov)

PERIODICAL: V sb.: Metallurgiya. Moscow-Leningrad, AN SSSR, 1957, pp 133-145

ABSTRACT: A brief survey of the development of light-metals industry in the USSR; it is pointed out that the first scientific investigations dealing with electrometallurgy of melts, physical chemistry, and chemical technology of raw Al and Mg sources were conducted in Leningrad and served as the scientific and theoretical wayshowers in the growth of the industry. The scientific research and design organizations of Leningrad developed the engineering processes and designed the first plants of the aluminum and magnesium industry. The following topics are further discussed: the role of Russian scientists in the development of a scientific-theoretical basis for the production of light metals, the work of the scientific-research institute NIISalyuminiy-VAMI,

Card 1/2

137-58-5-9223

• The Role of Leningrad in the (cont.)

the organization of the design planning for the light-metals industry, the work of Giproyaluminiumy, the creative fellowship between scientists and production workers, and the work of Leningrad Institutes in the years of the Great Patriotic War; future trends in the operations of light-metals industry are indicated.

N. P.

1. Metallurgy--USSR 2. Metals--Production 3. Metals--Processing

Card 2/2

VASIL'YEV
AGEYEV, P.Ya.; ALABYSHEV, A.F.; BAYMAKOV, Yu.V.; BELYAYEV, A.I.; BATASHEV, K.P.;
BUGAREV, L.A.; VASIL'YEV, Z.V.; GUPALO, I.P.; GUS'KOV, V.M.; ZHURIN, A.I.;
VET'YUKOV, M.M.; KOSTYUKOV, A.A.; LOZHKIN, L.N.; OL'KHOV, N.P.;
OSIPOVA, T.V.; PERTSEV, I.I.; RUMYANTSEV, M.V.; STRELETS, Ye.L.;
FIRSANOVA, L.A.; CHUPRAKOV, V.Ya.

Georgii Alekseevich Abramov. TSvet.met. 27 no.2:72-73 Mr-Ap '54. (MLA 10:10)
(Abramov, Georgii Alekseevich, 1906-1953)

ALEKSEYEV, N.S.; BELYAYEV, A.P.; BUGAREV, L.A.; BUTOMO, D.G.; VASIL'YEV, Z.V.;
VERIGIN, V.N.; VOROB'YEV, G.M.; GAYLIT, A.A.; GOL'SHTEYN, P.M.;
GOKHSHTEYN, M.B.; ZHOLOBOV, V.V.; ZEDIN, N.N.; IVANOV-SKOBLIKOV, N.I.;
KUTEPOV, Ya.V.; LANDIKHOV, A.D.; MARAYEV, S.Ye.; MILLER, L.Ye.;
OL'KHOV, N.P.; PERLIN, I.L.; POSTNIKOV, N.N.; ROZOV, M.N.; CHERNYAK, S.N.;
CHUPRAKOV, V.Ya.; TSETER, Ya.A.

Vladimir Oskarovich Gagen-Torn; obituary. TSvet.met. 27 no. 6: 67-68
S-O '54. (MIRA 10:10)

(Gagen-Torn, Vladimir Oskarovich, 1888-1954)

SOV/137-58-11-22218

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 54 (USSR)

AUTHORS: Strelets, Kh. L., Vasil'yev, Z. V., Gus'kov, V. M., Ivanov, A. I.,
Moiseyev, A. A., Farengol'ts, V. M.

TITLE: Development of an Electrolytic Method of Magnesium Recovery
(Razrabotka elektroliticheskogo sposoba polucheniya magniya)

PERIODICAL: V sb.: Legkiye metally. Nr 4. Leningrad. 1957, pp 87-92

ABSTRACT: The history of the creation of Mg production in the USSR. The major efforts of the research and planning institutions and plants ~~were directed~~ toward improving the designs of the cells and speeding the Mg electrolysis process. In recent years, five anode cells of both top and side anode-insertion designs, operating at 60,000 amps, have been placed in operation. The working height of the anode has been increased from 80 to 100 cm. When the distance between poles is 8 cm, this does not result in any significant reduction in the current efficiency of Mg. These electrolysis procedures require 15 kwh/kg Mg when Mg chloride is subjected to electrolysis in a bath of optimal composition.

I. G.

Card 1/1

S/262/62/000/009/009/017
1007/1207

AUTHOR: Vasil'ev-Yuzhin, R. M.

TITLE: Joint operation of a 4-stroke combustion engine and turbo-compressor

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk. 42. Silovyye ustanovki, no. 9, 1962. 54, abstract 42.9.297. In collection "Gazoturbin nadduv dvigateley vnutr. sgoraniya", M., Mashgiz, 1961, 67-78

TEXT: A graphical method for calculating engine characteristics, suggested by B.I. Ivanov (see a report in the same collection) and based on fewer working assumptions is described. The method has been experimentally checked on the → M50ΦTK (M50FTK) internal combustion engine and the → 9Д (9D) diesel engine. The report gives formulas for the constant and variable pressure of the gas prior to its inlet into the turbine.

[Abstracter's note: Complete translation.]

Card 1/1

VASIL'YEV, Zr.A.S.

Dynamics of the level of free 17-ketosteroids in the blood of patients with endovascular diseases in relation to operative treatment. Nauch. trudy Kaz. gos. med. inst. 14:385-386 1964.
(MIRA 1969)

L. Yafeeva hospital'noy khirurgii No.1 Kaz. - prof. N.P. Kozlov; katedra patologicheskoy fiziologii Kaz. - prof. A.A. Yersin i tsentral'naya nauchno-issledovatel'skaya laboratoriya Kaz. - kand. biolog. nauk S.V. Senkevich.

VASIL'YEV, Zh.Kh.; VOLKOV, V.Ye.

Use of hydrocortisone in operations on the heart. Nauch.
trudy Kaz. gos. med. inst. 14:387-388 '64. (MIRA 12:9)

1. Kafedra gosptal'noy khirurgii No.2 (zav. - prof. N.P. Medvedev) i kafedra patologicheskoy fiziologii (zav. - prof. M.A.Yerzin) Kazanskogo meditsinskogo instituta; kafedra khirurgii No.2 (zav. - prof. P.V.Kravchenko) Kazanskogo gosudarstvennogo instituta dlya usovershenstvovaniya vrachev imeni Lenina.

VASIL'YEV, Zh.Kh.; SABITOVA, A.I.

Determination of the available and the potential functional reserves of the adrenal cortex in patients with cardiovascular diseases. Nauch. trudy Kaz. gos. med. inst. 14:389-390 '64.
(MIRA 18:9)

1. Kafedra gosital'noy khirurgii No.2 (zav. - prof. H.P. Medvedev), kafedra patologicheskoy fiziologii (zav. - prof. M.A.Yerzin) i tsentral'naya nauchno-issledovatel'skaya laboratoriya (zav. - kand. biolog. nauk S.V.Senkevich) Kazanskogo meditsinskogo instituta.

1. LAPTEV, N. R.; VASIL'YEVA, A.

2. USSR (600)

4. Cementation (Metallurgy)

7. Cementation of tools made ShKh 15 steel. Poudalpaia, no. 11, 1952.

9. Monthly List of Russian Accessions. Library of Congress. March, 1953. Unclassified

1. VASIL'EVA, A.
2. USSR (600)
4. Air - Purification
7. Dust absorber. Z nan. Sila no. 11 1952

9. Monthly List of Russian Accessions, Library of Congress, March, 1952. Unclassified.

ACC NR: AP7007306

SOURCE CODE: UR/0084/67/000/002/0022/0023

AUTHOR: Vasil'yeva, A. (Engineer)

ORG: none

TITLE: Lights give the command [Glide-path lights]

SOURCE: Grazhdanskaya aviatsiya, no. 2, 1967, 22-23

TOPIC TAGS: ~~ground-controlled approach system~~, airfield lighting,
civil airfield, navigation aid, ~~navigation system, Sheremet'yev Airport~~

ABSTRACT: Glide-path lights were recently installed at the Moscow Sheremet'yev Airport. These lights augment the radio beacons and simplify landing for aircraft crews. The lights are symmetrically layed out relative to the runway like two luminous lines (see Fig. 1). At an angle, when approaching the prelanding glide descent, the lights appear as a narrow two-colored

Card 1/3

UDC: none

ACC NR: AP7007306

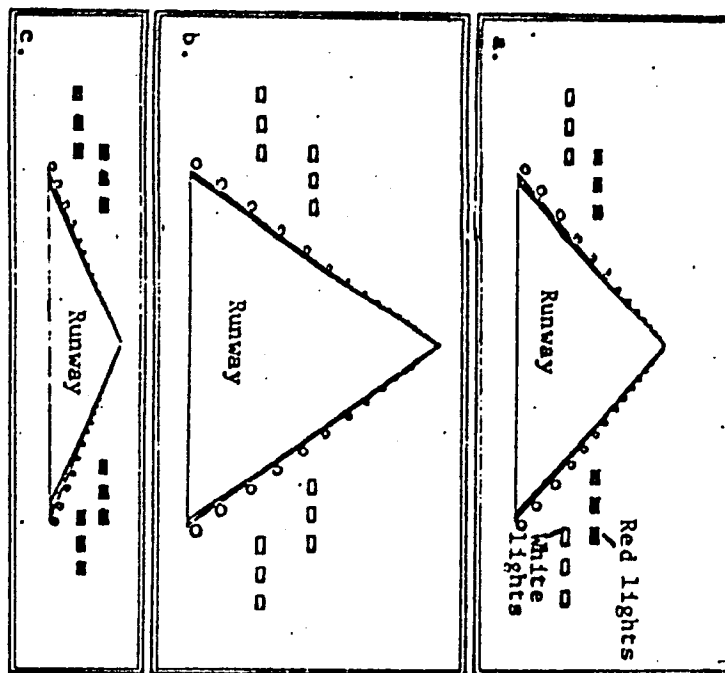


Fig. 1. Glide-path
light arrangement.
What the pilot sees upon
approach

a - Normal descent along
the glide path; b - too
high; c - too low.

Card 2/3

ACC NR: AP7007306

beam, the upper part of which is white and the lower, red. On a normal glide path the aircraft commander sees the far lights as red and the near lights as white. If the approach is above the glide path all the lights appear white, while below the glide path all appear red. The transition from red to white is gradual, and at that moment the lights appear pink and have an angular width of 0.5° . The brightness of the glide-path lights is adjustable to the requirements of the weather and the time of day, as well as to those of individual pilots. The airport dispatcher can alter the brightness in a matter of seconds. The basic components of each glide-path light are three 200-watt landing lights, a light-beam diffuser, and red-light filters mounted in a rectangular housing. The lights have been successfully used at Sheremet'yevo, and their future installation at other civil airports has been recommended. Orig. art. has: 2 figures. [TT]

SUB CODE: 01, 17/ SUBM DATE: none/ ATD PRESS: 5117

Card 3/3

VASIL'YEVA, A.A.

Stars, Variable

SZ Herculis. Per.zvezdy 2 no. 1 (1951)

9. Monthly List of Russian Accessions, Library of Congress, ¹⁹⁵²August ~~1953~~, Uncl.

VASIL'YEVA, A.A.

Ternary system of BT Persei. Biul.Stal.astron.obser. no.4:3-24 '52.
(MLBA 6:6)

1. Stalinabadskaya astronomicheskaya observatoriya. (Stars, Triple)

VASIL'YEVA, A. A. Cand. Chem. Sci.

Dissertation: "Accelerated Method for Isolating Alkaloids from Corpse Material with Acidified Water." Moscow Pharmaceutical Inst, 16 Jan 47.

SO: Vechernyaya Moskva, Jan, 1947 (Project #17836)

VASIL'YEVA, A.A.;SHVAYKOVA, M.D.

Mercury loss in general medico-legal chemical analysis, Aptech.
delo, Moskva 2 no. 1:46-49 Jan-Feb 1953. (CIML 24:1)

1. Of the Scientific-Research Institute of Forensic Medicine (Director -- Prof. V. I. Prozorovskiy), Ministry of Public Health USSR.

VASIL'YEVA, A-A.

✓ Certain problems connected with isolation of mercury compounds from biological material. A. A. Vasil'eva and M. D. Shvalkova. *Aptekhnika Delo* 4, No. 5, 23-6 (1955). — CH
The destruction of org. material often entails Hg losses. The following technique prevents it. A sample (100 g.) of tissue (liver or muscle) is placed in a 500-cc. Kjeldahl flask, wetted with water, and covered with a mixt. of 25 cc. of H_2SO_4 and 50 cc. of HNO_3 . It is heated over a small flame until there is no more foaming. The flame is increased and an addnl. amt. of HNO_3 (150-170 cc.) is added gradually through a separatory funnel or through an attachment which carries 2 glass tubes leading to flasks which contain 25 cc. of 25% H_2SO_4 and extending below the surface of the fluid. The oxidation requires from 14 to 30 hrs. After removal of nitrogen oxides the acid is dild. with water to 25% and extd. 4 times with iodine (0.1%) in ether using 40 cc. each time. The ethereal exts. are washed with water until neutral in reaction, transferred to a porcelain dish, the ether evapd., and the detn. of Hg carried out. The fluid in the absorption flasks is kjeldahlized and treated as described before. A. S. Mirkin —

Sci Res Inst. Forensic Med.

(1)

BOCHVAR, I. A.; VASIL'YEVA, A. A.; KEIRIM-MARKUS, I. B.; PROSINA, T. I.;
SERGEYEVA, N. A.; USPENSKIY, L. N.

Tissue dose of cosmic radiation taken in by V. F. Bykovskii and
V. V. Nikolaeva-Tereshkova during their joint orbital flight.
Kosm.issl. 2 no. 2:304-306 Mr-Ap '64. (MIRA 17:5)

VLASOV, V.M.; VASIL'YEVA, A.A.; TYUMENTSEVA, G.P.

Synthesis of acetals of acetylenic secondary-tertiary glycols
based on Favorskii rearrangement. Izv. AN SSSR. Ser. khim.
no. 12:2202-2204 '65. (MIRA 18:12)

1. Irkutskiy institut organicheskoy khimii Sibirskogo
otdeleniya AN SSSR. Submitted April 6, 1965.

GINDIN, L.M.; VASIL'YEVA, A.A.; IVANOV, I.M.

Extraction of bismuth, a tinony, and silver with aliphatic
monocarboxylic acids. Zhur. neorg. khim. 19 no.2:497-501
8 '65. (MIP) 18:11)

1. Submitted July 29, 1963.

VASIL'YEVA, A.A.

New State standards for laboratory methods of determining the
physical properties of soils. Osn., fund. i mekh. grun. 7 (MIRA 18:8)
no.4:30-31 '65.

GABINOVA, Zh. L., sanitarnyy vrach; VASIL'YEVA, A.A., sanitarnyy vrach;
SKLYARSKAYA, N. Kh., sanitarnyy vrach; MANITA M.D., kand. biolog.
nauk

Experience in the study of air pollution with 3,4-benzopyrene
in industrial enterprise regions. Gig. i san. 28 no.6:65-69
Je '63. (MIRA 17:4)

1. Iz Gorodskoy sanitarno-epidemiologicheskoy stantsii Moskvy.

ACCESSION NR: AP4034803

S/0293/64/002/002/0304/0306

AUTHOR: Bochvar, I. A.; Vasil'yeva, A. A.; Keirim-Markus, I. B.;
Prosina, T. I.; Sergeyeva, N. A.; Uspenskiy, L. N.

TITLE: Tissue dose of cosmic radiation received by V. F. Bykovskiy and
V. V. Tereshkova during tandem orbital flight

SOURCE: Kosmicheskiye issledovaniya, v. 2, no. 2, 1964, 304-306

TOPIC TAGS: tandem flight, Vostok 5, Vostok 6, cosmic radiation,
thermal neutrons.

ABSTRACT: Dosimetric readings taken during tandem orbital flights of
the Vostok-5 (Bykovskiy) and the Vostok-6 (Tereshkova) show that the
cosmic radiation doses absorbed by cosmonauts were 80 ± 5 mrad and
 44 ± 5 mrad, respectively. Comparison of the above figures with measure-
ments taken during preceeding flights show that the average intensity
of the absorbed radiation was $0.65 \text{ mrad} \times \text{hr}^{-1}$ or $16 \text{ mrad} \times 24 \text{ hr}^{-1}$.
The estimates of absorbed doses of thermal neutrons were $(1 \pm 15) \cdot 10^{-4}$ and
 $(7 \pm 15) \cdot 10^{-4}$ rem for the Vostok-5 and the Vostok-6, respectively. There-
for the respective fluxes of thermal neutrons were $(1 \pm 16) \cdot 10^5$ and

Card 1/2

ACCESSION NR: AP4034803

$(8 \pm 16) \cdot 10^5 \text{ cm}^{-2}$ while their densities were 0.2 ± 4 and $3 \pm 7 \text{ cm}^{-2} \cdot \text{sec}^{-1}$, respectively. The radiation levels on the outer skin of the space capsules were approximately 2—3 times higher than inside the space ships.

ASSOCIATION: none

SUBMITTED: 14Oct63

DATE ACQ: 20May64

ENCL: 00

SUB CODE: AM

NO REF SOV: 004

OTHER: 002

Card 2/2

TELESHOVA, M.N.; VIGALOK, R.V.; VASIL'YEVA, A.A.

Investigating the individual hydrocarbon composition of
gasolines. Nefteper. i neftekhim. no. 11:27-30 '63.
(MIRA 17:5)

1. Tatarskiy nauchno-issledovatel'skiy institut, g. Kazan'.

SHOSTAKOVSKIY, M. F.; VLASOV, V. M.; VASIL'YEVA, A. A.

Problem of the preparation of acetylenic γ -glycols and some of their transformations. Report No. 1: Synthesis of γ -glycols on the basis of 1-butyn-3-ol. Izv AN SSSR Ser Khim no. 4:696-698 Ap '64. (MIRA 17:5)

1. Irkutskiy institut organicheskoy khimii Sibirskogo otdeleniya AN SSSR.

TELESHOVA, M.N.; VASIL'YEVA, A.A.; SEMKIN, V.I.

Individual composition of gasoline from crude oil of the
Novo-Elkhovsk field of the Tatar A.S.S.R. Khim. i tekhn.
topl. i masel 8 no.10:14-16 O '63. (MIRA 16:11)

1. Tatarskiy neftyanoy nauchno-issledovatel'skiy institut.

ATAVIN, A.S.; VASIL'YEV, N.P.; VASIL'YEVA, A.A.

Interaction of vinyl alkyl ethers with trimethylolethane. Izv.
SO AN SSSR no.7 Ser.khim.nauk no.2:93-98 '63. (MIRA 16:10)

1. Irkutskiy institut organicheskoy khimii Sibirskogo oddeleniya
AN SSSR.

EPF(n)-2/EWP(q)/EWT(m)/BDS AFFTC/ASD/APGC/SSD Pu-4/
 L 12861-63 Pq-4 WH/DH
 ACCESSION NR: AP3003975 S/0089/63/015/001/0043/0052

AUTHOR: Bochvar, I. A.; Vasil'yeva, A. A.; Keirin-Markus, I. B.; Prosina, T. I;
Sy*ritskaya, Z. M.; Yakubik, V. V.

TITLE: Ionizing radiation dosimeters based on measurement of thermoluminescence of aluminophosphate glasses (IKS dosimeters)

SOURCE: Atomnaya energiya, v. 15, no. 1, 1963, 48-52

TOPIC TAGS: ionization dosimeter, aluminophosphate glass, Beta-radiation measurement, Gamma-radiation measurement, slow-neutron measurement, synchro-cyclotron, high-energy proton, IKS dosimeter

ABSTRACT: Ionization dosimeters made of aluminophosphate-covered glass were developed for measuring β - and γ -radiation, slow neutrons, and high-energy charged particles in the range from 0.02 to $(1-2) \cdot 10^5$ rads. The dosimeters operate on the following principle: the energy of ionizing radiation absorbed by the glass is stored in it in the form of light sum of the luminescence, which is emitted during heating of the glass and can then be recorded. The dosimeters are capable of accumulating and storing information over long periods, e.g., up to a month at 150C. While the dosimeter glass is not

Card 1/2

L 12861-63
ACCESSION NR: AP3003975

excited by daylight, an exposure of 40 days results in de-excitation of the stored light by 26—38%. The effective atomic number for the optimum composition of glasses is 11-13. A filter consisting of 0.6 mm Sn + 0.5 mm Al allows for compensation of the energy dependence at 40 Kev and above with an error of $\pm 20\%$. The dosimeter was tested using the synchrocyclotron of the Ob'yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research) with proton fluxes in the energy range of 100 to 500 Mev showed that the sensitivity of the detector glass to the tissue dose of high-energy protons coincides within 10% with the sensitivity of glass to γ -rays, indicating that the detector can be used for mixed p- and γ -radiation. Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 19May62

DATE ACQ: 08Aug63

ENCL: 00

SUB CODE: NS

NO REF SOV: 002

OTHER: 007

Card 2/2

KOLODKO, M.A., otv. red.; VASIL'YEVA, A.A., red.

[For technological progress in the lumbering industry]
Za tekhnicheskii progress v lesnoi promyshlennosti. Petro-
zavodsk, TSBTI Karel'skogo sovnarkhoza, 1962. 71 p.
(MIRA 16:4)

1. Nauchno-tekhnicheskoye obshchestvo lesnoy promyshlennosti
i lesnogo khozyaystva. Oblastnoye pravleniye.
(Karelia--Lumbering--Machinery)

PEROV, V.A.; VASIL'YEVA, A.A.

Kinetics of milling two-component mixtures in a ball mill.
Gor. zhur. no.7:69-70 J1 '61. (MIRA 15:2)

1. Leningradskiy gornyy institut.
(Ore dressing)

ZHOKHOV, P.I., inzh.; PERN, G.V., inzh.; DAVIDOVICH, Ye.M., inzh.; GABINOVA,
Sh.L., vrach; VASIL'YEVA, A.A., vrach; POPOV, B.V., vrach

Effect of smog in the air on landscape plantings. Gor.khoz.Mosk.
35 no.5:19-21 My '61. (MIRA 14:6)
(Moscow--Smog)

VASIL'YEVA, A.A.; KLYASHITSKAYA, A.L., kand.med.nauk; MANITA, M.D.,
kand.biologicheskikh nauk

Carboxyhemoglobin content of the blood of traffic controllers.
Gig. i san. 25 no. 12:77-80 D '60. (MIRA 14:2)

1. Iz Moskovskogo gorodskoy sanitarno-epidemiologicheskoy stantsii.
(CARBON MONOXIDE) (HEMOGLOBIN)
(TRAFFIC POLICE—DISEASES AND HYGIENE)

VASIL'YEVA, A. A. Cand Geol-Mineral Sci -- (diss) "The Effect of
Colloids on Certain Construction Characteristics of Clay Soils,"
Moscow, 1960, 17 pp, 119copies (Moscow State U im M. V. Lomonosov.
Sci-Res Institute of Foundations and Subterranean Structures of the
Academy of Construction and Architecture USSR) (KL, 46/60, 124)

AGALINA, M.S., inzh.; AKUTIN, T.K., inzh.; APRESOV, A.M., inzh.; ARISTOV,
S.S., kand. tekhn. nauk.; BELOSTOTSKIY, O.B., inzh.; BERLIN, A.Ye., inzh.;
BESSKIY, K.A., inzh.; BLYUM, A.M., inzh.; BRAUN, I.V., inzh.; BRODSKIY,
I.A., inzh.; BURAKAS, A.I., inzh.; VAYNMAN, I.Z., inzh.; VARSHAVSKIY,
I.N., inzh.; VASIL'YEVA, A.A., inzh.; VORONIN, S.A., inzh.; VOYTSEKHOVSKIY,
L.K., inzh.; VRUBLEVSKIY, A.A., inzh.; GERSHMAN, S.G., inzh.;
GOLUBYATNIKOV, G.A., inzh.; GORLIN, M.Yu., inzh.; GRAMMATIKOV, A.N., inzh.;
DASHEVSKIY, A.P., inzh.; DIDKOVSKIY, I.L., inzh.; DOBROVOL'SKIY, N.L., inzh.;
DROZDOV, P.F., kand. tekhn. nauk.; KOZLOVSKIY, A.A., inzh.; KIRILENKO,
V.G., inzh.; KOPELYANSKIY, G.D., kand. tekhn. nauk.; KORETSKIY, M.M., inzh.;
KUKHARCHUK, I.N., inzh.; KUCHER, M.G., inzh.; MERZLYAK, M.V., inzh.;
MIRONOV, V.V., inzh.; NOVITSKIY, G.V., inzh.; PADUN, N.M., inzh.;
PANKRAT'YEV, N.B., inzh.; PARKHOMENKO, V.I., kand. biol. nauk.; PINSKIY,
Ye.A., inzh.; PODLUBNYI, S.A., inzh.; PORAZHENKO, F.F., inzh.; PUZANOV,
I.G., inzh.; REDIN, I.P., inzh.; REZNIK, I.S., kand. tekhn. nauk.;
ROGOVSKIY, L.V., inzh.; RUDERMAN, A.G., inzh.; RYBAL'SKIY, V.I., inzh.;
SADOVNIKOV, I.S., inzh.; SEVER'YANOV, N.N., kand. tekhn. nauk.; SEMESHKO,
A.T., inzh.; SIMKIN, A.Kh., inzh.; SURDUTOVICH, I.N., inzh.; TROFIMOV,
V.I., inzh.; FEFER, M.M., inzh.; FIALKOVSKIY, A.M., inzh.; FRISHMAN,
M.S., inzh.; CHERESHNEV, V.A., inzh.; SHESTOV, B.S., inzh.; SHIFMAN,
M.I., inzh.; SHUMYATSKIY, A.F., inzh.; SECHERBAKOV, V.I., inzh.;
STANCHENKO, I.K., otv. red.: LISHIN, G.L., inzh., red.: KRAVTSOV, Ye.P.,
inzh., red.; GRIGOR'YEV, G.V., red.; KAMINSKIY, D.N., red.; KRASOVSKIY,
I.P., red.; LEYTMAN, L.Z., red. [deceased]; GUREVICH, M.S., inzh., red.;
DANILEVSKIY, A.S., inzh., red.; DEMIN, A.M., inzh., red.; KAGANOV,
S.I., inzh., red.; KAUFMAN, B.N., kand. tekhn. nauk. red.: LISTOPADOV,
N.P., inzh., red.; MENDELEVICH, I.R., inzh., red. [deceased];
(continued on next card)

AGALINA, M.S.... (continued) Card 2.

PENTKOVSKIY, M.I., inzh., red.; ROZENBERG, B.M., inzh., red.; SLAVIN, D.S., inzh., red.; FEDOROV, M.P., inzh., red.; TSYMBAL, A.V., inzh., red.; SMIRNOV, L.V., red. izd-va.; PROZOROVSKAYA, V.L., tekhn. red.

[Mining ; an encyclopedic handbook] Gornoe delo; entsiklopedicheski spravochnik. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po ugol'noi promyshl. Vol. 3. [Organization of planning; Construction of surface buildings and structures] Organizatsiia proektirovaniia; Stroitel'stvo zdani i sooruzhenii na poverkhnosti shakht. 1958. 497 p. (MIRA 11:12)

(Mining engineering)

(Building)

VASIL'YEVA, A.A.

Experience in using ultrasonics for determining the amount of
colloids in clay soils. [Trudy] NIIOSP no.33:49-56 '58. (MIRA 11:9)
(Clay--Testing) (Ultrasonic testing) (Soil colloids)

1. The first of the two main points of the report is that the Soviet Union is a "superpower" and that it is the only power in the world capable of defeating the United States. The second point is that the Soviet Union is a "superpower" and that it is the only power in the world capable of defeating the United States.

(XEROX COPY)
The author considers the system of differential equations $\dot{x} = Ax$ with respect to t as a special case. The treatment for the first
to the second order, which is a vector with n components, is reduced to higher order systems of ordinary differential

the solution of which is

Source: Mathematical Reviews, Vol. 1, No. 1

VASIL'YEVA A.B.

Vasil'eva, A. B. On differentiation of solutions of the
of the equations containing a small parameter

Proc. Steklov Inst. Math. 1964, 11, 1-11

200

Cand. Physico-Mathematical Sci.

VACHLEVA, A. .

"Differential Equations Containing a Small Parameter." SO: 27 Jan 51, Moscow.
Order of Lenin State University N. V. Leninovskiy.

Dissertation presented for science and engineering. Received in Moscow during 1951.

SO: Sum. No. 400, 2 May 55.

Pa. 173F55

USSR/Mathematics - Approximations Jan/Feb 51
Nonlinear Equations

"Differentiating the Solutions of Differential
Equations That Contain a Small Parameter," A. B.
Vasil'yeva, Moscow

"Matemat Spor" Vol XXVIII (70), No 1, pp 131-146

Considers system of ordinary (nonlinear) differential eq with initial conditions given. Compares original soln with degenerate soln where small parameter μ is set equal to zero. Studies deriv

USSR/Mathematics - Approximations 173F55
(Contd) Jan/Feb 51

of any order with respect to independent variable t in the case where μ approaches zero. Considers 1st-order deriv of same functions with respect to μ . Submitted 3 Jan 49.

VASIL'YEVA, A., B.,

173F55

VASIL'YEVA, A. V.

"On the Differentiation of the Solutions of a Differential Equation System
with Respect to the Largest of the Small Parameters", DAN 77, 781-784 (1951).

VASIL'YEVA, A. B.

184T70

USSR/Mathematics - Differential Equations 11 Jun 51
(Small Parameters)

"Differentiating the Solutions of Systems of Differential Equations With Respect to Small Parameters."
A. B. Vasil'yeva, Moscow State U imeni Lomonosov

"Dok Ak Nauk SSSR" Vol LXXVIII, No 5, pp 845-848

Investigates derivs, with respect to small parameters m_1, \dots, m_n , of soln of syst of eqs:
 $m_{\alpha} dz_{j\alpha}/dt = F_{j\alpha}(z_{p1}, \dots, z_{pn}, y_k, t)$
 $dy_i/dt = f_i(z_{p1}, \dots, z_{pn}, y_k, t)$ for given initial values of z and y . Submitted by Acad I. G. Petrovskiy 13 Apr 51.

184T70

VASIL'YEVA, A.B.

Vasil'eva, A. B. On differential equations
 (Russian)
 (Kiev, 1964)

Mathematical Reviews
 Vol. 18, No. 11
 Dec., 1974
 Anal. 741

Consider the system $\dot{z} = F(z, y, t)$, $\dot{y} = f(z, y, t)$, where z is an n -vector, y an m -vector, $t \geq 0$. Let $z^* = y^*(t)$ be an isolated solution of $F = 0$ which is a stable equilibrium point of the system $(2) dz/dt = F(z, y, t)$ for each fixed (y, t) in a region D , more precisely, assume that $V = \varphi < 0$ (scalar potential) in a neighborhood of $z = \varphi$. Assume $(z^*, y^*, 0)$ is such that the solution $z(t)$ of (2) (for $y = y^*, t = 0$) starting at z^* tends to $\varphi(y^*, 0)$ when $t \rightarrow +\infty$. Let \bar{y} be the solution of the system $\dot{y} = f(\tau, y, t)$ satisfying $\bar{y}(0) = y^*$ and $\bar{y} = \varphi(\bar{y}, t)$ (2, \bar{y} solution of the "degenerate" system $0 = F(z, y, t)$). It is known that if $z(t, \mu)$, $y(t, \mu)$ is the solution of (1) satisfying $z(0, \mu) = z^*$, $y(0, \mu) = y^*$, then, as $\mu \rightarrow 0$, we have $z(t, \mu) \rightarrow z(t)$ for $0 \leq t \leq T$, $y(t, \mu) \rightarrow \bar{y}(t)$ for $0 \leq t \leq T$. The present paper is devoted to the study of the convergence of the derivatives $\dot{z} = \partial z / \partial \mu$, $\dot{y} = \partial y / \partial \mu$. Assume that F has continuous second derivatives and f continuous first derivatives and that the matrix A whose elements are the derivatives of F with respect to z is non-singular, let B be the matrix whose elements are the derivatives of F with respect to y and C, D , the corresponding matrices whose elements are the derivatives of f . Then \dot{z}, \dot{y} satisfy the linear system

60.01.

$$\dot{p}\xi = A\xi + B\eta + d/dt \rightarrow C\xi + D\eta, \quad \xi(0) = \eta(0) = 0,$$
 and converge in $0 \leq t \leq 1$ towards the solution of the de-
 generate system $0 = A\xi + B\eta + d/dt, d\eta/dt = C\xi + D\eta$ (where
 A, B, C, D denote the values of A, B, C, D when x, y are replaced by
 x^0, y^0) and obtain the constant

$$\eta(0) = \int_0^1 [f(x(r), y^0, 0) - f(x^0, y^0, 0)] dr,$$
 where $x(r)$ is the previously mentioned solution of (2).
 Hence η has, for small a , a jump equal precisely to $\eta(0)$.
 Consequently, for the η obtained at the origin. Thus,
 the solution of the form $\eta = \eta(x, y)$ can be written as
 $\eta = \eta(x, y) + \eta(0)$ where $\eta(x, y)$ is a vector η and
 $\eta(0)$ is a constant vector. We can write such a way
 as $\eta = \eta(x, y) + \eta(0)$.

VASIL'YEVA, A. B.

FD-766

USSR/Mathematics - Small Parameters

Card 1/1 : Pub 129-3/24

Author : Vasil'yeva, A. B.

Title : Differentiation of the solutions to systems of differential equations containing small parameters in the derivatives.

Periodical : Vest. Mosk. un., Ser. fizikomat, 1 yest. nauk, Vol 9, No 2, 29-40 Mar 1954

Abstract : Extends the theorems proved by the author ("Systems containing small parameters", matem. sb., 31, 73, 587-644, 1952) to the case of the stability condition (i.e. negative character of the real parts of the roots of the usual characteristic equation derived by the first Lyapunov method). Discusses related works (1949-1952) of A. N. Tikhonov and I. S. Gradshteyn.

Institution : Chair of Mathematics of the Physics Faculty

Submitted : May 27, 1953

VASIL'YEVA, A.B.

Mathematical theory of catalysis. Vest.Mosk.un. 9 no.6:39-46
Je '54. (MLRA 7:8)

1. Kafedra matematiki Fizicheskogo fakul'teta.
(Catalysis)

20-119-1-1/52

AUTHOR:

Vasilyev, A.B.

TITLE:

On the Multiple Differentiation With Respect to a Parameter of the Solutions of a System of Ordinary Differential Equations With a Small Parameter at the Derivative (O mnogokratnom differentsirovaniy po parametru resheniy sistem obyknovennykh differentsial'nykh uravneniy s malym parametrom pri proizvodnoy)

PERIODICAL:

Doklady Akademii Nauk, 1958, Vol 119, Nr 1, pp 9-11 (USSR)

ABSTRACT:

Let the system

$$\mu \frac{dz}{dt} = F(z, x, t), \quad \frac{dx}{dt} = f(z, x, t), \quad z|_{t=0} = z^0, \quad x|_{t=0} = x^0$$

have the solutions $z(t, \mu)$, $x(t, \mu)$. Under the assumption that $F(z, x, t)$ is $(n+1)$ times and $f(z, x, t)$ is n times continuously differentiable with respect to all arguments, the author shows that in the interval $0 \leq t \leq T$ the n -th derivatives of the solutions tend to fixed boundary values for $\mu \rightarrow 0$. T is independent of μ . The boundary values are solutions of a degenerated ($\mu = 0$) system

Card 1/2

On the Multiple Differentiation With Respect to a Parameter 20-119-1-1/52
of the Solutions of a System of Ordinary Differential Equations
With a Small Parameter at the Derivative

$$\begin{cases} n \frac{d}{dt} \bar{z}_{\mu n-1} = F^{(n)}(\bar{z}, \bar{x}, t, \bar{z}_{\mu}, \dots, \bar{z}_{\mu n}, \bar{x}_{\mu}, \dots, \bar{x}_{\mu n}) \\ \frac{d}{dt} \bar{x}_{\mu n} = f^{(n)}(\bar{z}, \bar{x}, t, \bar{z}_{\mu}, \dots, \bar{z}_{\mu n}, \bar{x}_{\mu}, \dots, \bar{x}_{\mu n}) \end{cases}$$

for the initial condition

$$\bar{x}_{\mu n}|_{t=0} = \bar{x}_{\mu n}^0 - \int_0^{\infty} (-1)^n \tau^n f_{n-1}^{(n)}(\tau) d\tau.$$

Here $F^{(n)}$ and $f^{(n)}$ are linear functions of the $\bar{z}_{\mu i}$, $\bar{x}_{\mu i}$ with coefficients depending on \bar{z}, \bar{x}, t . The bars indicate that boundary values ($\mu \rightarrow 0$) of the solutions z, x and the derivatives $z_{\mu i}$, $x_{\mu i}$ are meant.

5 Soviet references are quoted.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova
(Moscow State University im. M.V. Lomonosov)

PRESENTED: October 9, 1957, by I.G. Petrovskiy, Academician

SUBMITTED: October 5, 1957

Card 2/2

AUTHOR: Vasil'yeva, A.B.

SOV/20-123-4-1/53

TITLE: The Asymptotic Behavior of the Solutions of Some Boundary Value Problems for Quasilinear Equations With a Small Parameter for the Highest Derivative (Asimptotika resheniy nekotorykh krayevykh zadach dlya kvazilineynykh uravneniy s malym parametrom pri starshey proizvodnoy)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 4, pp 583-586 (USSR)

ABSTRACT: The author considers the equation

$$(1) \quad \mu \frac{d^2 y}{dt^2} = -A(t, y) \frac{dy}{dt} + B(t, y)$$

and the boundary conditions

$$(2) \quad y'(0) = 0, \quad y(1) = 0 \quad \text{or} \quad y(0) = 0, \quad y(1) = 0.$$

Brish [Ref 1] has shown that the solution $u = u(t)$ satisfying the condition $u(1) = 0$ of the degenerated equation (1) - i.e. for $\mu = 0$ - represents an approximate solution of the problem (1)-(2). The author investigates the possibilities to determine higher approximations or to reach a uniform approximation by the obtained approximation. With well-known methods the author constructs asymptotic formulas for the

Card 1/2

The Asymptotic Behavior of the Solutions of Some Boundary Value Problems for Quasilinear Equations With a Small Parameter for the Highest Derivative SOV/20-125-4-1/53

solutions of several initial value problems for (1). Here the initial values contain certain undetermined constants. After obtaining the asymptotic formulas, these constants are chosen so that the solution satisfies the boundary conditions (2). There are 4 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova
(Moscow State University imeni M.V. Lomonosov)

PRESENTED: July 4, 1958, by I.G. Petrovskiy, Academician

SUBMITTED: July 1958

Card 2/2

16(1)

AUTHOR:

Vasil'yeva, A.B. (Moscow)

SOV/39-48-3-3/5

TITLE:

On Multiple Differentiation With Respect to the Parameter of the Solutions of Systems of Ordinary Differential Equations With a Small Parameter in the Derivative

PERIODICAL:

Matematicheskii sbornik, 1959, Vol 48, Nr 3, pp 311-334 (USSR)

ABSTRACT:

Let the system

$$(1) \begin{cases} \mu \frac{dz}{dt} = F(z, x, t) \\ \frac{dx}{dt} = f(z, x, t) \\ z|_{t=0} = z^0, \quad x|_{t=0} = x^0 \end{cases}$$

with the small parameter $\mu > 0$ be given. In [Ref 1_] A.N.

Tikhonov has shown that under certain assumptions the solutions $z(t, \mu)$ and $x(t, \mu)$ of (1) for $\mu \rightarrow 0$ tend to the solutions of the degenerated system ($\mu = 0$)

Card 1/3

On Multiple Differentiation With Respect to the Parameter of the Solutions of Systems of Ordinary Differential Equations With a Small Parameter in the Derivative

SOV/39-48-3-3/5

$$0 = F(z, x, t)$$

$$(2) \quad \frac{dx}{dt} = f(z, x, t)$$

The author considers the limit behavior of the higher derivatives of the solutions of (1) with respect to the parameter μ for $\mu \rightarrow 0$ and she proves that also the derivatives tend to

completely determined limit functions.

Theorem : The boundary values of the n-th derivatives of $z(t, \mu)$ and $x(t, \mu)$ exist and satisfy the degenerated system

$$(10) \quad 0 = F_n(\bar{z}, \bar{x}, t, \bar{z}_{\mu}, \bar{x}_{\mu}, \dots, \bar{z}_{\mu^n}, \bar{x}_{\mu^n}) - n \frac{d}{dt} \bar{z}_{\mu^{n-1}}$$

$$\frac{d}{dt} \bar{x}_{\mu^n} = f_n(\bar{z}, \bar{x}, t, \bar{z}_{\mu}, \bar{x}_{\mu}, \dots, \bar{z}_{\mu^n}, \bar{x}_{\mu^n})$$

for the initial condition

Card 2/3

On Multiple Differentiation With Respect to the SOV/39-48-3-3/5
 Parameter of the Solutions of Systems of Ordinary Differential Equations
 With a Small Parameter in the Derivative

$$(13) \quad \bar{x}_{\mu^n} \Big|_{t=0} = \bar{x}_{\mu^n}^0 = (-1)^n \int_0^{\infty} \tau^n f_{n-1}^{(n)}(\tau) d\tau$$

Here \bar{z}_{μ^n} , \bar{x}_{μ^n} denote the n-th derivatives with respect to μ
 of the boundary values \bar{z}_{μ} , \bar{x}_{μ} of the $z(t, \mu)$, $x(t, \mu)$;
 f_{n-1} is the (n-1)-st term of the expansion of $f(z, x, \mu \tau)$,
 $t = \mu \tau$.

The proof is based on four lemmata.
 There are 10 Soviet references.

SUBMITTED: October 11, 1957

Card 3/3

16(1)

SOV/20-124-3.3/67

AUTHOR:

Vasil'yeva, A.B.

TITLE:

Uniform Approximation of the Solution of a System of Differential Equations With a Small Parameter in the Derivative and Application to Boundary Value Problems (Ravnomernoye priblizheniye k resheniyu sistemy differentsial'nykh uravneniy s malym parametrom pri priczvodnoy i prilozheniye k krayevym zadacham)

PERIODICAL:

Doklady Akademii naukSSSR, 1959, Vol 124, Nr 3, pp 509 - 512 (USSR)

ABSTRACT:

Besides the given system

$$(1) \mu \frac{dz}{dt} = F(z, y, t), \quad \frac{dy}{dt} = f(z, y, t), \quad \mu \geq 0, \quad z|_{t=t_0} = z^0(\mu), \\ y|_{t=t_0} = y^0(\mu)$$

the author considers two auxiliary systems. Firstly : The degenerated system of order k which results from (1) by differentiating (1) k-times with respect to μ and then setting $\mu = 0$. Secondly : The adjoint system of order k; this originates as follows : It is set

Card 1/3

Uniform Approximation of the Solution of a System of Differential Equations With a Small Parameter in the Derivative and Application to Boundary Value Problems SOV/20-124-3-3/67

$\frac{t-t_0}{\mu} = \tau$, y and z are represented as series

$y = y_0(\tau) + \mu y_1(\tau) + \dots$, $z = z_0(\tau) + \mu z_1(\tau) + \dots$, they are substituted into (1) and the coefficients of equal μ -powers are compared; the system originating in the determination of y_k , z_k is the adjoint system of order k . From the solutions of the auxiliary systems there are formed certain auxiliary functions Y_n , Z_n which are used for the estimation of the solutions of (1): For sufficiently small μ it holds $|y(t, \mu) - Y_n| < c\mu^{n+1}$, $|z(t, \mu) - Z_n| < c\mu^{n+1}$. By two boundary value problems it is shown that the functions Y_n , Z_n can be used for the construction of an approximative solution.

Card 2/3

Uniform Approximation of the Solution of a System of SOV/20-124-3-3/67
Differential Equations With a Small Parameter in the Derivative and
Application to Boundary Value Problems

There is 1 Soviet reference.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova
(Moscow State University imeni M.V. Lomonosov)

PRESENTED: September 24, 1958, by I.G. Petrovskiy, Academician

SUBMITTED: September 18, 1958

Card 3/3

66399

SOV/20-128-6-3/63

16(1) 16.3400

AUTHOR: Vasil'yeva, A.B.

TITLE: Asymptotic Formulas for Solving Ordinary Simultaneous Differential Equations Having Derivatives With Parameters of Different Order of Smallness

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 6, pp 1110-1113 (USSR)

ABSTRACT: The author considers the system of equations ($\mu_1, \mu_2 \gg 0$):

$$(1) \quad \mu_1 \mu_2 \frac{dz}{dt} = w(z, y, x, t), \quad \mu_2 \frac{dy}{dt} = v(z, y, x, t), \quad \frac{dx}{dt} = u(z, y, x, t)$$

$$(2) \quad z|_{t=0} = z^0, \quad y|_{t=0} = y^0, \quad x|_{t=0} = x^0,$$

where z, y, x in general are vectors. The behavior for $\mu_1 \rightarrow 0$ and $\mu_2 \rightarrow 0$ is investigated. With the aid of some auxiliary systems being simpler than (1) the author obtains an asymptotic representation of the solution of (1), where the remainder term has the estimation $|R_n| < C\mu_1^{n+1} + C\mu_1^n \mu_2 + \dots + C\mu_2^{n+1}$, where C are certain constants not depending on μ_1, μ_2 and t . The terms of order zero of these developments contain the limit functions

Card 1/2

4

66399

Asymptotic Formulas for Solving Ordinary Simultaneous SOV/20-128-6-3/63
Differential Equations Having Derivatives With
Parameters of Different Order of Smallness

treated in [Ref 1] and some additional terms which make allowance for the fact that the solution of the degenerated system ($\mu_1 = \mu_2 = 0$) can not approximatively satisfy the boundary conditions (2) so that in the neighborhood of $t=0$ the solutions of the degenerated and the original system are very different. A special case of the considered problem was treated by the author in [Ref 2].
There are 2 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova
(Moscow State University imeni M.V.Lomonosov)

PRESENTED: June 12, 1959, by I.G.Petrovskiy, Academician

SUBMITTED: June 11, 1959

Card 2/2

VASIL'YEVA, A.B. (Moskva)

Construction of a uniform approximation for solutions of systems of differential equations with a small parameter at the highest derivative. Mat.sbor. 50 no.1:43-58 Ja '60. (MIRA 13:6)
(Differential equations)

86817

S/020/60/135/005/002/043
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b.3400

AUTHORS: Vasil'yeva, A.B., and Tupchiyev, V.A.

TITLE: Asymptotic Formulas for the Solution of a Boundary Value Problem
in the Case of Second Order Equation Containing a Small Parameter
With the Highest Derivative

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol.135, No.5, pp.1035-1037

TEXT: The authors consider the boundary value problem

(3) $\mu^2 y'' = F(y, t),$

(1) $y(0) = 0, y(1) = 0.$

Let
(6) $y = \bar{y}_0(t) + \mu \bar{y}_1(t) + \mu^2 \bar{y}_2(t) + \dots$

be the formal development of the solution. By the transformations $\tau_0 = \frac{t}{\mu}$

and $\tau_1 = \frac{t-1}{\mu}$ let (3) be transformed in

(7) $\frac{d^2 y^{(0)}}{d\tau_0^2} = F(y, \tau_0, \mu)$

and

Card 1/4

86817

S/020/60/135/005/002/043
C111/C222

Asymptotic Formulas for the Solution of a Boundary Value Problem in the
Case of Second Order Equation Containing a Small Parameter With the
Highest Derivatives

$$(8) \quad \frac{d^2 y}{d\tau_1^2} = F(y, 1 + \tau_1 \mu).$$

Let

$$(9) \quad y = y_0 + \mu y_1 + \dots$$

and

$$(10) \quad y = y_0 + \mu y_1 + \dots$$

be the formal solutions of (7) and (8). Let

Card 2/4

86817

S/020/60/135/005/002/043
C111/C222

Asymptotic Formulas for the Solution of a Boundary Value Problem in the Case of Second Order Equation Containing a Small Parameter With the Highest Derivative

$$(15) \quad Y_n = \bar{y}_0 + \mu \bar{y}_1 + \dots + \mu^{n-1} \bar{y}_{n-1} + \mu^n \bar{y}_n + y_0 + \mu y_1 + \dots + \mu^{n-1} y_{n-1} + \mu^n y_n -$$

$$-(\bar{y}_0(0) + \mu \bar{y}_1(0) + t \bar{y}_{0,t}(0) + \dots + \mu^n y_n(0) + t \mu^{n-1} \bar{y}_{n-1,t}(0) + \dots + \frac{t^n}{n!} \bar{y}_{0,t^n}(0)) -$$

$$-(\bar{y}_0(1) + \mu \bar{y}_1(1) + (t-1) \bar{y}_{0,t}(1) + \dots + \mu^n \bar{y}_n(1) + (t-1) \mu^{n-1} \bar{y}_{n-1,t}(1) + \dots +$$

$$+ \frac{(t-1)^n}{n!} y_{0,t^n}(1))$$

and

$$(18) \quad U_n = \bar{y}_0(t) + \mu^2 \bar{y}_2(t) + \dots + \mu^{2n-2} \bar{y}_{2n-2}(t).$$

Let $\varphi(t)$ be a solution of $F(y, t) = 0$. Let α be a sufficiently small neighborhood (independent of μ) of the curve consisting of $y = \varphi(t)$

Card 3/4

86817

S/020/60/135/C05/C02/043
C111/C222

Asymptotic Formulas for the Solution of a Boundary Value Problem in the Case of Second Order Equation Containing a Small Parameter With the Highest Derivative

($0 \leq t \leq 1$), $t=1$ (from $y = 0$ to $y = \varphi(0)$) and $t = 1$ (from $y = 0$ to $y = \varphi(1)$).
Theorem: If $F(y, t)$ has continuous partial derivatives up to the order $n+1$ inclusively in α , and if $F_y \gg m > 0$ in α and has there continuous partial

derivatives up to the order $2n$ inclusively, then for the solution $y(t, \mu)$ of the boundary value problem (3)+(1) there hold the inequations

$$|y(t, \mu) - Y_n| < C\mu^{n+1} \quad (0 \leq t \leq 1)$$

$$|y(t, \mu) - U_n| < C\mu^{2(n+1)} \quad (\varepsilon \leq t \leq 1 - \varepsilon),$$

where Y_n and U_n are given by (15) and (18); ε is arbitrarily small, independent of μ ; C is a constant independent of μ for $\mu \leq \mu^0$.
There are 2 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova
(Moscow State University imeni M.V.Lomonosov)

PRESENTED: July 1, 1960, by I.G.Petrovskiy, Academician

SUBMITTED: June 30, 1960

Card 4/4

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16-3400

AUTHOR: Vasil'yeva, A. B.

TITLE: ~~THE~~ Asymptotic Behavior of the Solutions to Certain Boundary Value Problems for Equations Involving a Small Parameter With the Highest Derivative

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 6, pp. 1303-1306

TEXT: Generalizing the results of (Ref.2) the author considers the problem

$$(1) \quad \mu \frac{dz}{dt} = F(z, y, t), \quad \frac{dy}{dt} = f(z, y, t)$$

$$(3) \quad R(y(0), y(1), z(0), z(1)) = 0,$$

where z, y and R are vectors with M, m and $(M+m)$ components. The author investigates the behavior of the solutions for $\mu \rightarrow 0$. Two kinds of limit behavior are stated. 1.) There are solutions (type I) for which the limit functions corresponding to y are continuous on $[0, 1]$ and y tends uniformly to these limit functions, while the limit functions corresponding to z show a discontinuity either for

Card 1/2

S/020/60/135/006/001/037
C 111/ C 333

The Asymptotic Behavior of the Solutions to Certain Boundary Value Problems for Equations Involving a Small Parameter With the Highest Derivative

$t = 0$ or $t = 1$. 2.) There are solutions (type II) for which each limit function corresponding to y , for $t = t^0$ ($0 < t^0 < 1$), possesses a joint, while the limit function corresponding to z (for $M = 1$, since otherwise such solutions do not generally exist), for $t = t^0$, possesses a discontinuity of the first kind. The author gives conditions for the existence of both kinds of the solutions.

There are 2 Soviet references.

[Abstracter's note: (Ref.2) is a paper of the author in Doklady Akademii nauk SSSR, 1959, Vol. 124, No. 3].

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: July 1, 1960, by J. G. Petrovskiy, Academician

SUBMITTED: June 30, 1960

Card 2/2